**Zoho Interview Questions - Round 2**

**1. Print the word with odd letters as**

P M  
 R A  
 O R  
 G  
 O R  
 R A  
P M

**2. Given a set of numbers like <10, 36, 54,89,12> we want to find sum of weights based on the following conditions**

1. 5 if a perfect square

2. 4 if multiple of 4 and divisible by 6

3. 3 if even number

And sort the numbers based on the weight and print it as follows

<10,its\_weight>,<36,its weight><89,its weight>

Should display the numbers based on increasing order.

**3. Save the string “WELCOMETOZOHOCORPORATION” in a two dimensional array and search for substring like “too” in the two dimensional string both from left to right and from top to bottom.**

w e L C O  
M E T O Z  
O H O C O  
R P O R A  
T I O n

And print the start and ending index as

Start index : <1,2>

End index: <3, 2>

**4. Given a 9×9 sudoku we have to evaluate it for its correctness. We have to check both the sub matrix correctness and the whole sudoku correctness.**

**5. Given a two dimensional array of string like**

<”luke”, “shaw”>  
 <”wayne”, “rooney”>  
 <”rooney”, “ronaldo”>  
 <”shaw”, “rooney”>

Where the first string is “child”, second string is “Father”. And given “ronaldo” we have to find his no of grandchildren Here “ronaldo” has 2 grandchildren. So our output should be 2.

**6. Alternate sorting: Given an array of integers, rearrange the array in such a way that the first element is first maximum and second element is first minimum.**

Eg.) Input : {1, 2, 3, 4, 5, 6, 7}  
 Output : {7, 1, 6, 2, 5, 3, 4}

**7. Remove unbalanced parentheses in a given expression.**

Eg.) Input : ((abc)((de))  
 Output : ((abc)(de))   
  
 Input : (((ab)  
 Output : (ab)

**8. Form a number system with only 3 and 4. Find the nth number of the number system.**

Eg.) The numbers are: 3, 4, 33, 34, 43, 44, 333, 334, 343, 344, 433, 434, 443, 444, 3333, 3334, 3343, 3344, 3433, 3434, 3443, 3444 ….

**9. Check whether a given mathematical expression is valid.**

Eg.) Input : (a+b)(a\*b)  
 Output : Valid  
  
 Input : (ab)(ab+)  
 Output : Invalid  
  
 Input : ((a+b)  
 Output : Invalid

**10. Write a program to give the following output for the given input**

Eg 1: Input: a1b10  
 Output: abbbbbbbbbb  
Eg: 2: Input: b3c6d15  
 Output: bbbccccccddddddddddddddd  
The number varies from 1 to 99.

**11. Write a program to sort the elements in odd positions in descending order and elements in ascending order**

Eg 1: Input: 13,2 4,15,12,10,5  
 Output: 13,2,12,10,5,15,4  
Eg 2: Input: 1,2,3,4,5,6,7,8,9  
 Output: 9,2,7,4,5,6,3,8,1

**12. Write a program to print the following output for the given input. You can assume the string is of odd length**

Eg 1: Input: 12345  
 Output:  
1 5  
 2 4  
 3  
 2 4  
1 5  
Eg 2: Input: geeksforgeeks  
 Output:  
g s  
 e k  
 e e  
 k e  
 s g  
 f r  
 o  
 f r  
 s g  
 k e  
 e e  
 e k  
g s

**13. Find if a String2 is substring of String1. If it is, return the index of the first occurrence. else return -1.**

Eg 1:Input:  
 String 1: test123string  
 String 2: 123  
 Output: 4  
Eg 2: Input:  
 String 1: testing12  
 String 2: 1234   
 Output: -1

**14. Given two sorted arrays, merge them such that the elements are not repeated**

Eg 1: Input:  
 Array 1: 2,4,5,6,7,9,10,13  
 Array 2: 2,3,4,5,6,7,8,9,11,15  
 Output:  
 Merged array: 2,3,4,5,6,7,8,9,10,11,13,15

**15. Using Recursion reverse the string such as**

Eg 1: Input: one two three  
 Output: three two one  
Eg 2: Input: I love india  
 Output: india love I

**16. To find the odd numbers in between the range.**

Input:

2

15

Output:

3,5,7,9,11,13

**17. To find the factors of the numbers given in an array and to sort the numbers in descending order according to the factors present in it.**

Input:

Given array : 8, 2, 3, 12, 16

Output:

12, 16, 8, 2, 3

**18. To output the number in words (0-999)**

Input: 234

Output: Two hundred and Thirty Four

**19. To find the print the pattern:**

Ip: n=5

Op:

1

1 1

2 1

1 2 1 1

1 1 1 2 2 1

**20. A man his driving car from home to office with X petrol. There are N number of petrol bunks in the city with only few capacities and each petrol is located in different places For one km one liter will consume. So he fill up petrol in his petrol tank in each petrol bunks. Output the remaining petrol if he has or tell him that he cannot travel if he is out of petrol.**

Input:

Petrol in car: 2 Liters

Petrol bunks: A B C

Distance from petrol each petrol bunks: 1, 5, 3

Capacities of each petrol bunk: 6, 4, 2

Output:

Remaining petrol in car is 5 liters

**21. Print the given pattern:**

Input:

N= 3, M=3

Output:

X X X

X 0 X

X X X

Input:

N=4 M=5

Output:

X X X X

X 0 0 X

X 0 0 X

X 0 0 X

X X X X

Input:

N=6 M=7

X X X X X X

X 0 0 0 0 X

X 0 X X 0 X

X 0 X X 0 X

X 0 X X 0 X

X 0 0 0 0 X

X X X X X X

**22. To find the number of groups and output the groups:**

Explanation: To find the sum of the elements in the groups and that sum should be divisible by input X and the groups should be limited to range with X numbers.

If X is 3, then the group should have only 2 elements and 3 elements from the array whose sum is divisible by 3.

Input:

Array: 3, 9, 7, 4, 6, 8

X: 3

Output:

3, 9

3, 6

9, 6

3, 9, 6

No of groups: 4

**23. To output the given string for the given input which is an integer.**

Input: 1

Output: A

Input: 26

Output: Z

Input : 27

Output: AA

Input: 28:

Output: AB

Input: 1000

Output: ALL

**24. Add to numbers represented in a array**

Input:

Number of elements in set1: 4

Elements are: 9, 9, 9, 9

Number of elements in set 2: 3

Elements are: 1,1,1

Output:

1, 0, 1, 1, 0

Input:

Number of elements in set1: 11

Elements are: 7,2,3,4,5,3,1,2,7,2,8

Number of elements in set 2: 3

Elements are: 1,2,3

Output: 7,2,3,4,5,3,1,2,8,5,1

**25. Help john to find new friends in social network**

Input:

3

Mani 3 ram raj guna

Ram 2 kumar Kishore

Mughil 3 praveen Naveen Ramesh

Output:

Raj guna kumar Kishore praveen Naveen Ramesh

**26.**

Input:

With the starting and ending time of work given find the minimum no of workers needed

***Start time end time***1230 0130  
1200 0100  
1600 1700

Output:

2

**27. Find the union intersection of two list and also find except (remove even elements from list1 and odd elements from list2)**

Input

List 1: 1,3,4,5,6,8,9  
List 2: 1, 5,8,9,2  
  
Union: 1, 3,4,5,6,8,9,2  
Intersection: 1,5,8,9  
Except: 1, 3, 5,9,8,2

**28. Rotate the matrix elements**  
For 3\*3 matrix  
Input  
1 2 3  
4 5 6  
7 8 9  
  
Output:  
4 1 2  
7 5 3  
8 9 6  
  
For 4\*4 matrix  
Input:  
1 2 3 4   
5 6 7 8  
9 10 11 12  
13 14 15 16  
  
Output:  
5 1 2 3  
9 10 6 4  
13 11 7 8  
14 15 16 12

**29. Find the largest possible prime number with given no**

Input

5

4691

Output:

9461

**30. Given dates in day,month, year order sort them.**

**31. Given a string of integers find out all the possible words that can made out of it in continuous order.**

Eg: 11112

ans: AAAAB

AKAB

AAKB

AAAL etc.

**32. Find whether a given number is magic number or not. It is something which gives same digits even after cubing it**.

**33. Rotate an array.**

**34. Given two numbers and an operation either + or – , perform the operation.**

**Now remove any zeros if present in the two numbers and perform an operation. See if the result obtained is same or not after removing zero’s in the original result.**

**35. Given a number, check if it is cyclic or not.**

A cyclic number is an integer in which cyclic permutations of the digits are successive multiples of the number. The most widely known is the six-digit number 142857

The following trivial cases are typically excluded for Cyclic Numbers.

* Single digits, e.g.: 5
* Repeated digits, e.g.: 555
* Repeated cyclic numbers, e.g.: 142857142857

Input : 142857  
Output : Yes  
Explanation  
 142857 × 1 = 142857  
 142857 × 2 = 285714  
 142857 × 3 = 428571  
 142857 × 4 = 571428  
 142857 × 5 = 714285  
 142857 × 6 = 857142

**36. Sort the given dates**

**37. write a code to solve given mathematical expression**

You are given a string that represent an expression of digits and operands. E.g. 1+2\*3, 1-2+4. You need to evaluate the string or the expression. NO BODMAS is followed. If the expression is of incorrect syntax return -1.

Test cases:

a) 1+2\*3 will be evaluated to 9.

b) 4-2+6\*3 will be evaluated to 24.

c) 1++2 will be evaluated to -1(INVALID).

Also, in the string spaces can occur. For that case we need to ignore the spaces. Like :- 1\*2 -1 is equals to 1.

**38. Generation of unique number from any random number**

**39. given a number u need to print all combination of alphabets for that number**

**40. Arrange the numbers in descending order depending on the no. of factors available for each number.**

I/P: {6,8,9}

O/P: {8,6,9} or {6,8,9}

Reason: factors of 8 (1,2,4,8), factors of 6 (1,2,3,6), factors of 9 (1,3,9).

**41. Two strings of equal length are given print the mismatched ones.**

I/P: a b c d e f g h i

a b d e e g g i i

O/P: cd , de //when two char are mismatched they should be printed together.

f , g

h , i

**42. Get a number and check whether its palindrome do not use arrays and string manipulations**

I/P: 5

O/P: 101-Palindrome

Reason: binary representation of 5 is 101 & it is a palindrome.

I/P: 10

**O/P: Binary representation of 10 is 1010 –Not a palindrome**

**43. For any given matrix find the path from the start to the end which gives the maximum sum. Traverse only right or down.**

Example: starting index is 15 (left top) and ending index is 10 (bottom right)

15 25 30

45 25 60

70 75 10

O/P:15->45->70->75->10 sum is 215

**44.**

[ [‘Lava’ , ‘kusha] ,

[‘Rama’ , ‘Lava’] ,

[‘Lava ‘,’Ravanan’] ,

[‘Abi’ , ‘Lava’] ]

First string is the child & the second string is the parent. Print the no. of grand children available for the given I/P.

I/P: Ravanan

O/P: 2

**45. Spiral printing.**

O/P:

4444444

4333334

4322234

4321234

4322234

4333334

4444444

**46. Sort the array alternately i.e first element should be max value, second min value, third second max, third second min.**

Eg: arr[] = {1,2,3,4,5,6,7}

O/P: {7,1,6,2,5,3,4}

Note: no extra space and time complexity should be less

**47. Print all the substring of the given string.**

**48. Print the numbers which are mismatched from two array.**

Arr1 = {a b c d e f g h i}

arr2 ={ a b d e e g g i i}

O/P- cd, de, f, g, h, i.

**49. Print all possible combinations from the given string.**

**50. Given two sorted arrays output a merged array without duplicates.**

Array1: [1, 2, 3, 6, 9]

Array2: [2, 4, 5, 10]

Merged Array: [1, 2, 3, 4, 5, 6, 9, 10]

**51. Given a sliding window of size k print the maximum of the numbers under the sliding window.**

Example: Consider a sliding window of size k equals 3. Let the array be [3,2,7,6,5,1,2,3,4] the output should print 7 as the first output as first window contains {3,2,7} and second window contains {2,7,6} and so on and the final output is {7,7,7,6,5,3,4}

**52. Given a array with n elements print the number of occurrences of that number each number in that array. The order of number doesn’t matter. You can reorder the elements.**

Example : [2,1,3,2,2,5,8,9,8]

Output:

2-3

1-1

3-1

5-1

8-2

9-1

**53. Enter two strings from command line and check whether any substring present in first string that follows the pattern of second sting**

They asked to implement regular expressions for \* and backslash without built in functions.

“abcd” “a\*cd” answer : yes

“aaaa” “a\*” answer : yes

“a\*c” “a\\*c” answer:yes

“adsd” “ad” answer:no

**54. Passage and the output should be printing out the number of occurrence of each word and the indices it occurs without using string matching**

The passage given was “jana Gana Mana” and so on.. and we have to print number of jana and it’s indices.i.e at which position it occurs.

**55. Given two numbers a and b both < 200 we have to find the square numbers which lie between a and b(inclusive)**

eg) i/p a = 20;b = 100;  
 o/p 25,36,49,64,81,100

**56. Alternately sort an unsorted array**

eg) i/p {5,2,8,7,4,3,9}  
 o/p {9,2,8,3,7,4,5}

**57. Given an array and a threshold value find the o/p**

eg) i/p {5,8,10,13,6,2};threshold = 3;  
 o/p count = 17  
 explanation:  
Number parts counts  
5 {3,2} 2  
8 {3,3,2} 3  
10 {3,3,3,1} 4  
13 {3,3,3,3,1} 5  
6 {3,3} 2  
2 {2} 1

**58.a. Given two binary numbers add the two numbers in binary form without converting them to decimal value.**

eg) a = 1010 b = 11001  
 o/p 100011

**b.The two numbers were given in base n**   
 eg) a = 123 b = 13 n = 4  
 o/p 202

**59. Write a program to print the below pattern**

for n = 6  
 1 7 12 16 19 21  
 2 8 13 17 20  
3 9 14 18   
4 10 15  
5 11   
6

**60.Given bigger NxN matrix and a smaller MxM matrix print TRUE if the smaller matrix can be found in the bigger matrix else print FALSE**

**61.Given two matrices a and b both of size NxN find if matrix a can be transformed to matrix b by rotating it 90deg , 180deg , 270deg if so print TRUE else print FALSE**

**62. Check if matrix a can be transformed by mirroring vertically or horizontally to matrix b.**

**63. Given an array. Print the elements of the array which are greater than its previous elements in the array.**

**Input :** 2, -3, -4, 5, 9, 7, 8

**Output:** 2 5 9You should solve this question in O(n) time.

**64. Given an even number n. If n=4, you have to print the following pattern :**

4444

4334

4334

4444

If n=6, then the pattern should be like this :

666666

655556

654456

654456

655556

666666

**65. Given a number n. If write all the numbers from 1 to n in a paper, we have to find the number of characters written on the paper.For example if n=13, the output should be 18 if n = 101, the output should be 195**

**66. A number is called as binary-decimal if all the digits in the number should be either ‘1’ or ‘0’. Any number can be written as a sum of binary-decimals. Our task is to find the minimum number of binary-decimals to represent a number.**

**Input :** 32

**Output :** 10 11 11

**Input :** 120

**Output :** 10 110

**67. Given a string as an input. You have to reverse the string by keeping the punctuation and spaces. You have to modify the source string itself with creating an another string.**

**Input :**A man, in the boat says : I see 1-2-3 in the sky

**Output :**

y kse, ht ni3 21ee slsy : a sta o-b-e ht nin amA

**68. Given a number, convert it into corresponding alphabet.**

Input Output  
 1 A  
 26 Z  
 27 AA  
 676 ZZZ

**69. Given a Roman numeral, find its corresponding decimal value.**

<https://www.geeksforgeeks.org/converting-roman-numerals-decimal-lying-1-3999/>

**70. Write a program to print all permutations of a given string.**

Note here you need to take all combinations as well, say for the input ABC the output should be as follows:

Input: ABC  
Output:  
A  
B C  
AB AC BA BC CA CB  
ABC ACB BCA BAC CBA CAB

**71. Write a program to rotate an n\*n matrix 90,180,270,360 degree.**

<https://www.geeksforgeeks.org/inplace-rotate-square-matrix-by-90-degrees/> is the solution for rotating a matrix 90 degree. For rotating the matrix 180,270,360 degree, u need to call the same method 2,3,4 times based on the input.

**72. Reverse each words in a given string** <https://www.geeksforgeeks.org/reverse-words-in-a-given-string/>

**73. Write a program to convert a number into a mono-digit number.**

Conditions:

a) You are allowed to add and subtract the consecutive digits (starting from left).

b) You are allowed to do only one operation on a digit.

c) You cannot perform any operation on a resultant digit of the previous operation.

d) Your code should also find if a given number cannot be converted to a mono digit number.

Input Output  
 72581 7(2+5)81  
 77(8-1)  
 777  
 3962 cannot create a mono digit number

**74. Given an array, find the minimum of all the greater numbers for each element in the array.**

Sample:   
Array : {2, 3, 7, ­1, 8, 5, 11}   
   
Output:   
{2­>3, 3­>5, 7­>8, ­1­>2, 8­>11, 5­>7, 11­>}

**75. Find the largest sum contiguous subarray which should not have negative numbers. We have to print the sum and the corresponding array elements which brought up the**

**sum.**

Sample:   
Array : {­2, 7, 5, ­1, 3, 2, 9, ­7}   
  
Output:   
 Sum : 14   
 Elements : 3, 2, 9

**76. Given a string, we have to reverse the string without changing the position of punctuations and spaces.**

Sample: house no : 123@ cbe   
Output: ebc32 1o : nes@ uoh

**77. Given a 2D grid of characters, you have to search for all the words in a dictionary by moving only along two directions, either right or down. Print the word if it occurs.**

Sample :   
 a z o l   
 n x h o  
 v y i v   
 o r s e   
 Dictionary = {van, zoho, love, are, is}   
   
 Output:   
 zoho   
 love   
 Is

**78. Given a string, change the order of words in the string (last string should come first). Should use RECURSION**

Sample: one two three   
Output : three two one

**79. Sort numbers based on digits starting from most significant numbers.**

Eg: input-100 1 11 21 2 3.

Output-1 100 11 2 21 3

**80. Given an odd length word which should be printed from the middle of the word.**

**The output should be in the following pattern.**

Example:

Input: PROGRAM  
Output:  
 G  
 GR  
 GRA  
 GRAM  
 GRAMP  
 GRAMPR  
GRAMPRO

**81. It is a program to implement Least Recently Used (LRU) concept.**

Given a key, if it is already existed then it should be marked as recently used otherwise a value should be stored which is given as input and marked as recently used. The capacity is to store only 10 key, value pairs. If the table is full and given a new key; the key, value pair which is not recently used should be deleted which gives feasibility to store the new key, value pair.

**82. Given a few pairs of names in the order child, father. The input is a person name and level number. The output should be the number of children in that particular level for the person given.**

Example:

Input:

[

{Ram, Syam},

{Akil, Syam},

{Nikil, Ram},

{Subhash, Ram},

{Karthik, Akil}

];

Syam 2

Output: 3 (Syam has Ram and Akil in level 1 and in level 2 he have Nikil, Subhash, Karthik. So the answer is 3).

**83. Given an array of positive integers. The output should be the number of occurrences of each number.**

Example:

Input: {2, 3, 2, 6, 1, 6, 2}

Output:

1 – 1

2 – 3

3 – 1

6 – 2

**84. Adding 2 numbers**

Given 2 huge numbers as separate digits, store them in array

and process them and calculate the sum of 2 numbers and store

the result in an array and print the sum.

Input:

Number of digits:12

9 2 8 1 3 5 6 7 3 1 1 6

Number of digits:9

7 8 4 6 2 1 9 9 7

Output :

9 2 8 9 2 0 2 9 5 1 1 3

**85. Given sorted array check if two numbers sum in it is a given value**

Input

Array = {1 3 4 8 10 } N = 7

output

true

**86. Computing value of sin (x)**

Input x = 30 n = 10

output = 0.5

Hint : The equation sin(x) = x – x^3 / 3! + x^5 / 5! – ….

**87. Write function to find multiplication of 2 numbers using + operator You must use minimum possible iterations.**

Input: 3 , 4

Output 12

**88. Given array find maximum sum of contiguous sub array**

{-2 -3 4 -1 -2 1 5 -3}

output 7 elements [ 4 -1 -2 1 5]

**89. Given unsorted array find all combination of the element for a given sum. Order should be maintained.**

Input :

8 3 4 7 9 N=7

Output

{3 4 } {7}